

■ MM1018 SMART S #2492

Product description

MM1018 SMART S is a metal polymer for full-surface and force-fit compensation and filling of inaccuracies and unevenness between metal elements such as head plates metal elements such as head plates, bridge bearings, crane runway and rail guides as well as steel components. For gap dimensions >10 mm, we recommend inserting steel lining plates to reduce the maximum gap width to less than 10 mm. For easier handling, MM1018 SMART S is supplied ready to use in a double cartridge. This saves time and avoids possible mixing errors during application. MM1018 SMART S is free-flowing and self-levelling. The material is poured or injected into the gap.



Advantages

- Easy handling
- No mixing errors
- Time saving
- Short curing time

Accessories required

- Static mixer #2132
- Pneumatic standing dispenser #8160

Characteristics

- Very high compressive strength > 100 N/mm²
- Resistant to corrosion and weathering
- Resistant to seawater
- Chemically resistant to oil, petrol, coolants
- Fast curing < 8 h at 20 °C

Typical applications

Gap compensation, force-fit connection to

- Head plate joints
- Bridge bearings
- Crane and guide rails
- Silos
- Steel hydraulic engineering structures
- Steel construction and structural steel engineering
- Tunnelling

for steel-steel and steel-concrete joints.

MM1018 – The Liquid-Shim®

- Always fits
- Saves time and costs

Available in the following versions

ARTICLE	PRODUCT	DESCRIPTION
#2492	MM1018 SMART S	Double cartridge 2.2 kg (resin + hardener), special sizes on request

Product data condition of delivery

PROPERTIES	VALUE
Colour component A (resin) Colour component B (hardener)	Grey Transparent (slightly yellowish)
Storability	Store in the original, unopened container in a dry place at a maximum temperature of 30°C. Temperatures higher than 30°C can lead to leaks or resin/hardener lead to leakage of resin/hardener! Shelf life 6 months. Protect from direct sunlight. Higher temperatures reduce the shelf life.
Density of component A (resin) Density of component B (hardener)	2.3 g/cm ³ at 20 °C 1.8 g/cm ³ at 20 °C
Viscosity of component A (resin) Viscosity of component B (hardener)	19.000 mPas 11.000 mPas
Mixing ratio component A (resin)	3:1 (weight); 2:1 volume
Curing	8 hours
Processing temperature material temperature	For improved workability, MM1018 SMART S can be heated briefly: 1 hour to a maximum of 40 °C
Consumption/yield	<p>The calculation basis for the material consumption (M in g) is the base area (A in cm²) and the average gap size (d in cm) are required.</p> <p>M (in g) = A cm² * d cm * 1.2 * 2.0 g/cm³</p> <p>Example: 1m² contact surface with 1 mm gap M = 10.000 cm² * 0.1 cm * 1.2 * 2.0 g/cm³ = 2.400 g = 2.4 kg</p> <p>This calculation includes an excess material of 20 % to compensate for tolerances and application-related additional consumption.</p>
Maximum layer thickness tested by the manufacturer	We recommend the use of MM1018 SMART S up to a maximum layer thickness of 10 mm. Larger gaps can be reduced by inserting lining sheets. Applications > 10 mm are possible, but we recommend consulting our technicians beforehand.

Product data fully cured product

PROPERTIES	VALUE
Density	2.0 g/cm ³
Compressive strength	100 N/mm ² (24 hours) DIN EN 13412:2006
Hardness (ShoreD)	88

PROPERTIES	VALUE
E-modulus	3,900 N/mm ² (4 hours) DIN EN 13412:2006
Shrinkage	0.035 % DIN EN 12617-4:2002
Colour	Grey
Application temperature	Maximum 50 °C

Storage / shelf life

Store in the original, unopened container in a dry place at a maximum of 30 °C. Temperatures higher than 30 °C can lead to leaks or to resin/hardener escaping! Shelf life 6 months. Protect from direct sunlight. Higher temperatures reduce the shelf life.

Work preparation

If possible, contact surfaces that are wetted with MM1018 must be cleaned of dirt and loose particles using de-oiled compressed air (e.g. DIAMANT cleaner #1417). Screws must be protected if necessary (e.g. with DIAMANT screw protection #8880) to prevent the threads from sticking to MM1018 at a later date. If the contact surfaces need to be separated again at a later date, it is necessary to apply a release agent (e.g. DIAMANT Separator #1354) in advance.

Application

MM1018 SMART S can only be applied by injection. It is necessary that the gap to be filled is sealed all round. The use of MM1018 SEAL #2108 is recommended for gap sealing. Information on material and processing can be found in the technical data sheet MM1018 SEAL #2108.

Injection

MM1018 SMART S can be injected into a sealed cavity. A prerequisite for the injection are appropriate injection and ventilation openings which must be planned depending on the existing gap dimensions or cavity. Injection takes place via packers attached to the gap. Depending on the installation situation, these are available as flat packers (Prod. No. #8202) or angled packers (Prod. No. #8201). The connection is made via flexible plastic hoses (Prod. No. #1579) using shut-off valves (Prod. No. #1577) which are attached to the inlet and outlet points via the packers or the screw connections (Prod. No. #1578). An approx. 150 mm long plastic hose, a shut-off valve and a further piece of hose designed to suit the working conditions for connecting the injection cartridge or for venting must be attached using suitable clamps (Prod. No. #1576).

The static mixing spiral #2132 is attached to the double cartridge and secured with the bayonet catch. The double cartridge is inserted into the dispenser - when the cartridge is correctly fitted, it snaps into place. The cartridge tip is now placed on the free end of the hose by hand. After opening the shut-off valve, injection can begin at the push of a button. The injection pressure can be regulated via the dispenser. To change or refill the cartridge, the pistons of the dispenser are retracted, then the shut-off valve is closed to prevent the already injected material from flowing back. The free end of the hose is fixed for the cartridge change so that no material can leak out. Injection is terminated as soon as the material emerges from the upper vent opening. Close the shut-off valve before removing the cartridge. Any material flowing back out of the injection hose must be collected with a cloth, for example, and disposed of properly.

After curing, the injection and vent connections can be knocked off and disposed of.

Time schedule

1. Clean and apply DIAMANT separator if necessary
2. Attach screw protection if necessary
3. Prepare and install the injection opening
4. All-round sealing with MM1018 SEAL or use the injection pad
5. Allow MM1018 SEAL to harden
6. Injection with MM1018 SMART S
7. Allow MM1018 SMART S to harden
8. Knock off the injection connections and clean the gap area if necessary
9. Apply corrosion protection if necessary

Injectionpad

As an alternative, it is possible to use MM1018 SMART S with an injection pad. The injection pad is a self-contained application system that is customised to the gap geometry to be filled. The injection pad speeds up the application of MM1018 SMART S as it is not necessary to seal the gap. Thanks to the integrated connections in the injection pad, the highly tear-resistant film can be filled directly with MM1018 SMART S. A minimum lead time of 14 days is required for the custom-fit production of the injection pad.

Results of the Shore D measurement

The following table summarises the results of the Shore D measurement.

TEMPERATURE (°C)	Time of measurement (hours)				
	2	4	6	8	24
20	-	-	65	92	92
30	47	89	90	90	91
40	87	90	92	91	94

Table 1: Overview of the measured Shore D hardnesses. The measured values are unitless.

Results of the compressive strength test

The results of the pressure test are summarised in the following table.
The respective result is the average of 12 individual measurements.

TEMPERATURE (°C)	Time of measurement (hours)				
	2	4	6	8	24
20	-	-	29.0	60.1	97.3
30	20.3	81.0	96.4	102.5	110.5
40	87.1	84.8	92	112.1	94

Table 2: Overview of the averaged compressive strengths. The measured values are given in N/mm².

Disposal

Unused material can be disposed of normally if it has been mixed in the correct ratio and is fully cured (EWC 170203). Unmixed material must be disposed of as chemical waste (EAKV 080111) **When booking our DIAMANT application service, we will take care of the professional and correct disposal of the waste.**

Qualification & Service

To ensure the best possible quality and error-free application, we offer the following services:

- Product training
- Site supervision and monitoring (supervising)
- Complete realisation of the work by our experienced application technicians and fitters

Contact us, we will be happy to advise you and will be on site immediately.

Safety Data Sheet

Please read the relevant safety data sheet before processing the product. Safety data sheets are available on a daily basis on request via info@diamant-polymer.de or by telephone on +49-2166-98360.

DIAMANT guarantees the product properties as long as they are stored and used in accordance with the specifications listed here. DIAMANT accepts no responsibility for the processing of the material. Our technicians will be happy to answer any further questions you may have.

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